



*Cafe*

P A T E N T

Attorney Docket No.  
033082 M 098

**ATTN: CERTIFICATE OF CORRECTION DIVISION**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Patentee: **Kazunari SAKATA, et al.** )  
 )  
U. S. Application No. 09/934,756 )  
 )  
U.S. Patent No.: 7,059,849 B2 )  
 )  
Issued: June 13, 2006 )

For: HEAT TREATMENT SYSTEM AND A METHOD FOR COOLING A LOADING CHAMBER

**REQUEST FOR CERTIFICATE OF CORRECTION  
UNDER 37 CFR §1.322(a)**

Commissioner for Patents  
P. O. Box 1450  
Alexandria, VA 22313-1450

**Certificate**  
**AUG 10 2006**  
**of Correction**

Dear Sir:

The undersigned, on behalf of the patent owner, hereby requests official correction of  
U.S. Patent 7,059,849 B2. Attached is Form PTO-1050.

A review of the issued patent uncovered an error made by the U.S. Patent and Trademark Office (USPTO). The cover page of the patent in the Inventors section incorrectly lists the names of four inventors who were removed from the listing of inventors for the above-identified patent. Further to the cancellation of non-elected claims 1-16 in an Amendment filed on May 20, 2004, Applicants filed a Request to Correct Inventorship on September 7, 2004 to remove Kazunari SAKATA, Shinya MOCHIZUKI, Motoko AKIMOTO, and Hiroshi MOTONO as inventors, because their contributions to the invention were no longer being claimed. Only

**AUG 11 2006**

originally-listed inventors (1) Koyu HASEGAWA, (2) Keiichi KATABUCHI, and (3) Shingo WATANABE are coinventors of the subject matter of U. S. Patent No. 7,059,849 B2.

A copy of each of the above-mentioned documents and the USPTO's date-stamped postcards are attached for the Examiner's convenience.


Therefore, it is respectfully requested that the USPTO issue a Certificate of Correction to correctly list only Koyu HASEGAWA, Keiichi KATABUCHI, and Shingo WATANABE as inventors of U. S. Patent No. 7,059,849 B2.

No fee is due in connection with this matter because the error was made by the USPTO.

Respectfully submitted,

SMITH, GAMBRELL & RUSSELL, LLP

By :

  
\_\_\_\_\_  
Michael A. Makuch, Reg. 32,263  
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Date : August 8, 2006

AUG 11 2006

## UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO : 7,059,849 B2

Page 1 of 1

APPLICATION NO. : 09/934,756

ISSUE DATE : June 13, 2006

INVENTOR(S) : Koyu HASEGAWA, Keiichi KATABUCHI, and Shingo WATANABE

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

On the face of the patent, please insert

--73 Inventors: Koyu HASEGAWA, Kanagawa-Ken, Japan  
Keiichi KATABUCHI, Kanagawa-Ken, Japan  
Shingo WATANABE, Kanagawa-Ken, Japan

MAILING ADDRESS OF SENDER (Please do not use customer number below):

Smith, Gambrell & Russell, LLP  
Suite 800, 1850 M Street, NW  
Washington, DC 20036

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

AUG 11 2006

Attorney Docket  
33082 M 098



**COPY**

PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicants : Kazunari SAKATA, et al.  
Serial No. : 09/934,756 Art Unit : 3749  
Filed : August 23, 2001 Examiner : Jiping LU  
For : A HEAT TREATMENT SYSTEM AND A METHOD FOR COOLING A  
LOADING CHAMBER (As Amended)

**AMENDMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir :

In response to the Office Action mailed February 24, 2004 please amend the above-identified application as set forth below and consider the following remarks.

AUG 11 2006

Serial No. 09/934,756  
Docket : 33082 M 098

**IN THE CLAIMS:**

Please amend claims 17 through 21 as shown in the attached listing of claims.

Please cancel claims 1 through 16 as shown in the attached listing of claims.

AUG 11 2005

Serial No. 09/934,756  
Docket : 33082 M 098

**IN THE ABSTRACT OF THE DISCLOSURE**

Please replace the current Abstract with the attached replacement Abstract.

AUG 11 2006

Serial No. 09/934,756  
Docket : 33082 M 098

**IN THE TITLE OF THE INVENTION**

Please amend the current title to --A HEAT TREATMENT SYSTEM AND A METHOD  
FOR COOLING A LOADING CHAMBER--.

AUG 11 2009

### **REMARKS**

Claims 1-21 were pending in this application, of which claims 20 and 21 have been allowed, claims 15 and 16 have been rejected, claims 17-19 have been made subject to objection, and claims 1-14 have been withdrawn from consideration. Acknowledgement is made with appreciation of the early indication of allowance of claims 20 and 21, and of allowable subject matter in claims 20 and 21.

Upon entry of the following amendments, claims 15-16 will be canceled and claim 17 will be rewritten in independent form by incorporating the subject matter of claims 15 and 16 therein. This places claim 17 in independent form without changing the original scope of the claim. In addition, claims 18 and 21 have been amended to correct informalities. Thus, claims 17-21 remain active in this application. Non-elected and inactive claims 1-14 also have been cancelled. The Examiner is respectfully requested to reconsider and withdraw the outstanding objection(s) and rejection(s) in view of the amendments and remarks contained herein.

### **OBJECTIONS**

An objection has been made to Abstract of the Disclosure as being of improper length and format. Accordingly, the Abstract has been amended as shown in the attached replacement Abstract. In addition, Applicants have amended the title of the invention to more clearly reflect the present invention as set forth in the active claims.

An objection was made to claims 17-19 as dependent upon a rejected base claim. The objection is overcome with the conversion of claim 17 to independent form.



Claims 18 and 21 were objected to because of a typographical error. Accordingly, the term "intake fun" has been changed to --intake fan -- in these claims. In addition, claim 21 has been amended to establish proper antecedent basis for the ventilating unit. These revisions do not narrow the scope of original claims 18 or 21. Likewise, the minor editorial revisions to claims 19 and 20 are not intended to, and are not considered to narrow the original scope of those claims. The form of claims 18-21 has been improved. Applicants respectfully request withdrawal of the outstanding objections.

**REJECTION UNDER 35 U. S. C. § 102**

Claims 15 and 16 were rejected under 35 U. S. C. § 102(b) as allegedly anticipated by Weaver (U.S. Patent No. 5,846,073). Applicants respectfully submit that this rejection is moot in view of the cancellation of claims 15 and 16. Claim 17 has been rewritten in independent form by incorporating the subject matter of canceled claims 15 and 16 therein. As such, Applicants respectfully request withdrawal of the rejection.

**CONCLUSION**

Applicants respectfully submit that this Amendment and the above remarks obviate the outstanding objection(s) and rejection(s) in this case, thereby placing the application in condition for immediate allowance. Allowance of this application is earnestly solicited.

If any fees under 37 C. F. R. §§ 1.16 or 1.17 are due in connection with this filing, please charge the fees to Deposit Account No. 02-4300, Order No. 033082M098.

Respectfully submitted,  
SMITH, GAMBRELL & RUSSELL, LLP

By:



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Facsimile: (202) 263-4329

Dated: May 20, 2004

AUG 11 2006

### Listing of Claims

1. - 16. (canceled)

17. (currently amended) A heat treatment system ~~as set forth in claim 16~~, comprising:

a heat treatment furnace for heat-treating an object to be treated;

a throat which is provided in said heat treatment furnace for carrying said object in and out; and

a cooling mechanism for cooling the vicinity of said throat,

wherein said cooling mechanism comprises a ventilating unit having a ventilating port for sending a cooling fluid toward the vicinity of said throat, and a heat exchanger arranged so as to face said ventilating port in the vicinity of said throat, and

wherein said cooling mechanism further comprises an intake fan for sucking the cooling fluid in the vicinity of said throat over said heat exchanger.

18. (currently amended) A heat treatment system as set forth in claim 17, wherein said cooling mechanism further comprises:

a duct for forming a circulating path for said cooling fluid between said intake ~~fan~~ fan and said ventilating unit so that said cooling fluid sucked by said intake fan returns to said ventilating unit;

a filter, provided in said duct or said ventilating unit, for purifying said cooling fluid which is sent by said ventilating unit; and

an intake port which is formed on said duct at least upstream of said filter so that said cooling fluid sent by said ventilating unit is sucked at a different position from a position at which said cooling fluid is sucked by said intake ~~fan~~ fan.

19. (currently amended) A heat treatment system as set forth in claim 18, wherein said cooling mechanism further comprises a second heat exchanger which is arranged in said duct between said intake port and said filter so as to cool the cooling fluid which is drawn into said duct from said intake fan and said intake port ~~to join~~.

20. (currently amended) A heat treatment system ~~having~~ which is provided with a loading chamber ~~in~~ which has a mechanism for carrying an object to be treated in and out of a throat of a bottom portion of a heat treatment furnace and which ~~has a loading chamber~~ is separated as an airtight region,

wherein said throat of said bottom portion of said heat treatment furnace is arranged above said loading chamber,

said loading chamber including:

a ventilating unit which has a ventilating port in the vicinity of said throat and a filter for purifying and sending a cooling fluid from the ventilating port to the vicinity of said throat from the side;

a first heat exchanger which is arranged so as to face said ventilating port in the vicinity of said throat;

an intake fan for sucking the cooling fluid in the vicinity of said throat over said first heat exchanger;

a circulating duct which forms a circulating path for said cooling fluid between said intake fan and said ventilating unit so that said cooling fluid sucked by said intake fan returns to said ventilating unit, at least a part of ~~said~~ said circulating duct being arranged below said loading chamber;

an intake port which is formed in the part of said circulating duct below said loading chamber so that a part of said cooling fluid sent by said ventilating unit is sucked below said loading chamber; and

a second heat exchanger which is arranged in said circulating duct between said intake port and said filter so that the cooling fluid drawn into said circulating duct from said intake fan and said intake port ~~to join~~ is cooled.

21. (currently amended) A method for cooling a loading chamber which is provided with a mechanism for carrying an object to be treated in or out of a throat of a heat treatment furnace in a heat treatment system and which is separated as an airtight region, said method comprising the steps of:

purifying and sending ~~said~~ cooling fluid to the vicinity of said throat of said heat treatment furnace;

sucking said cooling fluid, which is sent to the vicinity of said throat, over a heat exchanger, which is arranged in the vicinity of said throat, by means of an intake fan to ~~drawn~~

draw said cooling fluid into a duct which is formed as a circulating path for returning said cooling fluid;

sucking said cooling fluid, which is sent by said ~~a~~ ventilating unit, at a different position from a position at which said cooling fluid is sucked by said intake ~~fan~~ fan, by means of an intake port which is formed on said duct; and

cooling said cooling fluid, which is drawn into said duct from said intake ~~fan~~ fan and said intake port ~~to join~~, by means of a second heat exchanger, which is arranged in said duct downstream of said intake port, to return ~~the~~ cooled cooling fluid to said ventilating unit,

wherein said steps are continuously carried out in a process for carrying said object out of at least said throat of said heat treatment furnace.

### **Replacement Abstract**

A heat treatment system and method for cooling a loading chamber that includes a heat treatment furnace for heat-treating an object to be treated. The heat treatment furnace includes a throat for carrying the object in and out, and a cooling mechanism for cooling the vicinity of the throat. The cooling mechanism has a ventilating unit with a ventilating port for sending a cooling fluid toward the vicinity of the throat and a heat exchanger arranged so as to face the ventilating port in the vicinity of the throat. The cooling mechanism also has an intake fan for sucking the cooling fluid in the vicinity of the throat over the heat exchanger. When the object to be treated is carried in, the structure of various mechanisms in the vicinity of the throat is simplified, and space is saved.

Postcard receipt: Please apply mail room stamp and return to:  
SMITH, GAMBRELL & RUSSELL, L.L.P.

Attorney Docket No.: 033082M098  
Applicant(s): Kazunari SAKATA, et al.  
U.S. Appln. No.: 09/934,756  
File Date: August 23, 2001  
Title: A HEAT TREATMENT SYSTEM AND A METHOD FOR COOLING A  
LOADING CHAMBER (As Amended)

List of attached document(s):

- 1) AMENDMENT (with Listing of Claims and Replacement Abstract)

4

Dated: 20 May 2004

MAM/TLT/kjp



11 AUG 2006





COPY

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

CONFIRMATION NO. 8726

Applicants : Kazunari SAKATA, et al.

Serial No. : 09/934,756 ) Art Unit : 3749

Filed : August 23, 2001 ) Examiner : Jiping LU

For : Heat Treatment System and Method For Cooling A Loading Chamber (as amended)

**REQUEST TO CORRECT INVENTORSHIP  
UNDER 37 C.F.R. §1.48(b)**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In lieu of payment of the Issue Fee in the subject application, due September 16, 2004, Applicants are submitting concurrent herewith a Request for Continued Examination and an Information Disclosure Statement.

It is respectfully requested that

**Kazunari SAKATA**

**Shinya MOCHIZUKI**

**Motoki AKIMOTO, and**

**Hiroshi MOTONO**

be deleted as named inventors in the above-identified patent application. The contributions of Kazunari SAKATA, Shinya MOCHIZUKI, Motoko AKIMOTO and Hiroshi MOTONO are no longer being claimed in the present application due to the cancellation of non-elected claims 1-16 by the Amendment filed May 20, 2004.

Only originally-listed inventors (1) Koyu HASEGAWA, (2) Keiichi KATABUCHI and (3) Shingo WATANABE are the inventors of the subject matter of the claims remaining in this application.

Accordingly, it is requested that Kazunari SAKATA, Shinya MOCHIZUKI, Mokoto AKIMOTO and Hiroshi MOTONO be deleted from the listing of inventors.

Payment of the requisite processing fee (\$130) set forth in 37 CFR §1.117(i) is included in the attached check for \$900.

Entry and consideration of this Petition are respectfully requested.

Respectfully submitted,

SMITH, GAMBRELL & RUSSELL, LLP

By:



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1850 M Street, N.W., Suite 800  
Washington, D.C. 20036  
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Dated: September 7, 2004

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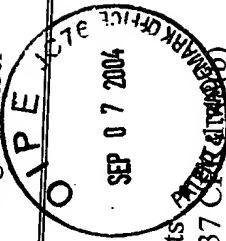
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SMITH, GAMBRELL & RUSSELL, L.L.P.

Attorney Dkt No. : 33082 M 098  
Applicants : Kazunari SAKATA, et al.  
Serial. No. : 09/934,756  
Filed : August 23, 2001

For : Heat Treatment System and Method For Cooling A Loading Chamber  
(as amended)

- Attached : 1. Check for \$900.  
2. Fee Transmittal  
3. RCE Transmittal  
4. IDS, PTO-1449 and 5 attached documents  
5. Request To Correct Inventorship under 37 C.F.R. 1.56(c)

MAM/s  
September 7, 2004



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